

IN THE CLAIMS:

1.-13. (Cancelled)

14. (New) A write-once optical disc onto which data is recorded in units of clusters, the write-once optical disc inducing a temporary defect management area, wherein

one or more structures for updating defect management are recorded in the temporary defect management area, and each structure performs update separately,

5 each of the structures includes at least one not-defective cluster in which a defective area list and structure information are included,

the defective area list includes entries for one or more defective areas in the optical disc,

the entries in the defective area list of each structure have been sorted in accordance with information of defective areas,

10 the structure information is arranged in a last cluster of each structure, and

the structure information includes a plurality of pieces of position information that indicate positions of clusters each of which includes a part of the defective area list.

15. (New) The optical disc of Claim 14, wherein

the structure is composed of a plurality of clusters including a defective cluster,

the defective area list is written into clusters such that the defective area list is divided into a first area of clusters preceding the defective cluster and a second area of clusters

5 succeeding the defective cluster, and

a first piece of position information that indicates a last cluster in the first area is, in the structure information, adjacent to a second piece of position information that indicates a starting cluster in the second area.

16. (New) A recording apparatus for writing a defective area list onto a write-once optical disc onto which data is recorded in units of clusters, the recording apparatus comprising:

a generating unit configured to generate the defective area list and structure information;
and

5 a writing unit configured to write a structure, which includes the generated defective area list and structure information, into at least one cluster in a temporary defect management area, wherein

the defective area list includes entries for one or more defective areas in the optical disc,
the structure information is arranged in a last cluster among clusters of the structure, and

10 the structure information includes a plurality of pieces of position information that indicate positions of clusters each of which includes a part of the defective area list,

when the structure is updated, the generating unit sorts entries in the defective area list in the structure in accordance with information of defective areas, and

15 the structure written into said at least one cluster in the temporary defect management area by the writing unit is composed of clusters that are not defective.

17. (New) The recording apparatus of Claim 16 further comprising

a verifying unit configured to verify whether or not a cluster A into which a defective area list was written is a defective cluster, wherein

if the cluster A is verified to be a defective cluster, the writing unit performs a retry to
5 write the defective area list into a cluster B that succeeds in position the cluster A,
during the retry, the defective area list is written such that the defective are list is divided
into a first area of clusters preceding the defective cluster and a second area of clusters
succeeding the defective cluster, and
the generating unit arranges a first piece of position information that indicates a last
10 cluster in the first area and a second piece of position information that indicates a starting cluster
in the second area, in the structure information such that the first piece of position information is
adjacent to the second piece of position information.

18. (New) A reading apparatus for reading a defective area list from a temporary
defect management area recorded on a write-once optical disc onto which data is recorded in
units of clusters, wherein

one or more structures for updating defect management are recorded in the temporary
5 defect management area, and each structure performs update separately,
each of the structures includes a defective area list and structure information,
each defective area list includes entries for one or more defective areas in the optical disc,
the entries in the defective area list of the structure have been sorted in accordance with
information of defective areas,
10 the structure information is arranged in a last cluster among clusters of the structure, and
the structure information includes a plurality of pieces of position information that
indicate positions of clusters each of which includes a part of the defective area list,
the reading apparatus comprising:

a reading unit configured to extract the structure information from the last cluster of the
15 structure and read out the defective area list from the optical disc onto a memory in accordance
with the plurality of pieces of position information;

a holding unit configured to hold the defective area list read out onto the memory; and

an accessing unit configured to, if a high-order apparatus has instructed to access a defective area that is indicated by the defective area list, access a spare area corresponding to the
20 defective area, in place of the defective area.

19. (New) A recording method for writing a defective area list onto a write-once optical disc onto which data is recorded in units of clusters, the recording method comprising the steps of:

generating the defective area list and structure information; and

5 writing a structure, which includes the generated defective area list and structure information, into a temporary defect management area, wherein

the defective area list includes entries for one or more defective areas in the optical disc,

the structure information is arranged in a last cluster among clusters of the structure, and

the structure information includes a plurality of pieces of position information that
10 indicate positions of clusters each of which includes a part of the defective area list,

when the structure is updated, the generating step sorts entries in the defective area list in the structure in accordance with information of defective areas, and

the structure written into said at least one cluster in the temporary defect management area in the writing step is composed of clusters that are not defective.

20. (New) The recording method of Claim 19 further comprising the step of verifying whether or not a cluster A into which a defective area list was written is a defective cluster, wherein

if the cluster A is verified to be a defective cluster, the writing step performs a retry to
5 write the defective area list into a cluster B that succeeds in position the cluster A,

during the retry, the defective area list is written such that the defective area list is divided into a first area of clusters preceding the defective cluster and a second area of clusters succeeding the defective cluster, and

the generating step arranges a first piece of position information that indicates a last
10 cluster in the first area and a second piece of position information that indicates a starting cluster in the second area, in the structure information such that the first piece of position information is adjacent to the second piece of position information.

21. (New) A reading method for reading a defective area list from a temporary defect management area included in a write-once optical disc onto which data is recorded in units of clusters, the write-once optical disc including, wherein

one or more structures for updating defect management are recorded in the temporary
5 defect management area, and each structure performs update separately,

each of the structures includes a defective area list and structure information,

the defective area list includes entries for one or more defective areas in the optical disc,

the entries included in the defective area list of each structure have been sorted in accordance with information of defective areas,

10 the structure information is arranged in a last cluster among clusters of the structure, and

the structure information includes a plurality of pieces of position information that indicate positions of clusters each of which includes a part of the defective area list,

the reading method comprising the steps of:

extracting the structure information from the last cluster of the structure and reading out

15 the defective area list from the optical disc onto a memory in accordance with the plurality of pieces of position information;

holding the defective area list read out onto the memory; and accessing, if a high-order apparatus has instructed to access a defective area that is indicated by the defective area list, a spare area corresponding to the defective area, in place of the defective area.

22. (New) A write-once optical disc onto which data is recorded in units of clusters, the write-once optical disc including a temporary defect management area, wherein

one or more structures for updating defect management are recorded in the temporary defect management area, and each structure performs update separately,

5 each of the structures includes at least one not-defective cluster in which a defective area list and structure information are included,

the defective area list includes entries for one or more defective areas in the optical disc,

the entries in the defective area list of each structure have been sorted in accordance with information of defective areas,

10 the structure information is arranged in a last cluster of each structure, and

the structure information includes a plurality of pieces of position information that indicate positions of clusters which constitute the structure.

23. (New) A recording apparatus for writing a defective area list onto a write-once optical disc onto which data is recorded in units of clusters, the recording apparatus comprising:

a generating unit configured to generate the defective area list and structure information; and

5 a writing unit configured to write a structure, which includes the generated defective area list and structure information, into at least one cluster in a temporary defect management area, wherein

the defective area list includes entries for one or more defective areas in the optical disc,

the structure information is arranged in a last cluster among clusters of the structure, and

10 the structure information includes a plurality of pieces of position information that indicate positions of clusters which constitute the structure,

when the structure is updated, the generating unit sorts entries in the defective area list in the structure in accordance with information of defective areas, and

the structure written into said at least one cluster in the temporary defect management 15 area by the writing unit is composed of clusters that are not defective.